

Amendments to the specification

Change page 2, lines 2 to 17, as follows:

The sialon fluorescent material, for instance, has been prepared by mixing together silicon nitride ( $\text{Si}_3\text{N}_4$ ), aluminum nitride ( $\text{AlN}$ ) and europium oxide ( $\text{Eu}_2\text{O}_3$ ) at a given molar ratio, and then subjecting the resulting mixture to hot-press firing wherein it is held at a temperature of  $1,700^\circ\text{C}$  for 1 hour in nitrogen of 1 atm (0.1 MPa) (for instance, see patent publication 1).  $\alpha$ -sialon with activated Eu ions, obtained by this method, has been reported to provide a fluorescent material that is excited by blue light of 450 to 500 nm, giving out yellow light of 550 to 600 nm. For applications such as white LEDs ~~LEDs~~ or plasma displays using an ultraviolet LED as an excitation source, however, fluorescent materials emitting not only yellow light but also blue light of 420 nm to 470 nm or green light of 500 nm to 550 nm are also still in need.

Change page 3, line 17 to page 4, line 6, as follows:

The  $\text{La}_3\text{Si}_8\text{N}_{11}\text{O}_4$  crystal phase, occurring by high-temperature firing of a composition approximate to  $\text{La}_2\text{O}_3\text{-}2\text{Si}_3\text{N}_4$ , has been synthesized by M. Mitomo et al. and indexed by X-ray diffraction, and before the filing of this application, its details have already been reported ~~at great length~~ in academic literature (see non-patent publication 1).

After that, R. K. Harris et al. identified the exact composition of that crystal to be  $\text{La}_3\text{Si}_8\text{N}_{11}\text{O}_4$  and reported its details ~~at great length~~ in academic literature (non-patent publication 2).

The  $\text{La}_3\text{Si}_{8-x}\text{Al}_x\text{N}_{11-x}\text{O}_{4+x}$  crystal phase is a solid solution made up of a  $\text{La}_3\text{Si}_8\text{N}_{11}\text{O}_4$  crystal containing Al and O. Details of that crystal phase, synthesized and structurally analyzed by Jekabs

Grins et al., were reported ~~at great length~~ in academic literature (see non-patent publication 3), too, before filing of this application.

Change page 11, lines 7 to 17, as follows:

The fluorescent material of the invention comprises as its main component a crystal phase having the general formula  $\text{La}_3\text{Si}_8\text{N}_{11}\text{O}_4$  or  $\text{La}_3\text{Si}_{8-x}\text{Al}_x\text{N}_{11-x}\text{O}_{4+x}$  where  $0 < x \leq 4$ , or a solid solution thereof. In consideration of fluorescence emission, it is here desired that  $\text{La}_3\text{Si}_8\text{N}_{11}\text{O}_4$  or  $\text{La}_3\text{Si}_{8-x}\text{Al}_x\text{N}_{11-x}\text{O}_{4+x}$  that is the main constituent of the oxynitride fluorescent material be contained as much as possible with high purity, and whenever possible, in a single phase form. Unless there is ~~no~~ property degradation, however, they could be used in admixture with other crystal phase or an amorphous phase.

Change page 17, lines 4 to 28, as follows:

When the lighting device is built up, the fluorescent material of the invention could be used alone or in combination with a fluorescent material having other emission properties. In this manner, a lighting device capable of emitting light in the desired color could be set up. As an example, there is a combination of an ultraviolet or violet LED emission element having a wavelength of 330 nm to 420 nm, a green fluorescent material that is excited at this wavelength to give out light having a wavelength of 520 nm to 570 nm inclusive, a red fluorescent material capable of emitting light of 570 nm to 700 nm inclusive and the fluorescent material of the invention. Such green fluorescent materials include  $\text{BaMgAl}_{10}\text{O}_{17}:\text{Eu}$ , Mn or  $\beta$ -sialon and such red fluorescent materials include  $\text{Y}_2\text{O}_3:\text{Eu}$ , and  $\text{CaAlSiN}_3:\text{Eu}$ . Among others,  $\beta$ -sialon:Eu and  $\text{CaAlSiN}_3:\text{Eu}$ , because the matrix crystal is formed of a nitride or oxy-nitride, are similar to the fluorescent material of the

invention in terms of crystallographic characteristics and, hence, dependencies of emission intensity on temperature changes. Thus, they are preferable for use in admixture form with the fluorescent material of the invention. As the fluorescent materials in this lighting device are irradiated with ultraviolet radiation coming out of the LED, it allows three light, red, green and blue to be mixed together into white light.

Change page 21, line 13 to page 22, line 4, as follows:

The starting powders used herein were the same silicon nitride powders, lanthanum oxide powders and cerium nitride powders as in Example 1 as well as europium oxide powders with a 99.9% purity, terbium oxide powders with a 99.9% purity, aluminum oxide powders with a 99.9% purity and lanthanum oxide powders with a 99.9% purity. Oxynitride ~~Oxy-nitride~~ powders were prepared following Example 1 with the exception that the compositions set out in Tables 1 and 2 were used. As a consequence of X-ray diffractometry upon pulverization of the synthesized samples, the compositions in Examples 2 to 8 were all identified as the  $\text{La}_3\text{Si}_8\text{N}_{11}\text{O}_4$  phase, and the compositions in Examples 9 and 10 were all identified as the  $\text{La}_3\text{Si}_{8-x}\text{Al}_x\text{N}_{11-x}\text{O}_{4+x}$  phase. Further, there were obtained fluorescent materials that were excited by ultraviolet radiation to give out visible light with high luminance, as shown in Examples 2 to 10 in Table 3. In particular, the samples with Ce added thereto provided excellent blue fluorescent materials and the sample with Tb added thereto provided excellent green fluorescent materials.